

What is claimed is:

1. A system for cellular surgery in tissue comprising:
common optics for scanning and focusing an imaging beam in or on said tissue and for collecting reflected light from said tissue;
means for detecting said reflected light, producing an image of said tissue;
means for identifying a histological signature from said image;
means responsive to said signature for selecting one or more cells of said tissue in said image to target for surgical treatment; and
means utilizing at least part of said optics to treat said tissue.
2. An apparatus for cellular surgery comprising:
a imaging system which focuses a first laser beam through optics to tissue and provides images of the tissue; and
a treatment system which focuses a second laser beam through at least some of said optics with the first laser beam for treating one or more selected locations in said imaged tissue in accordance with histological signatures from said image.
3. The apparatus according to Claim 2 wherein said imaging system comprises:
a first laser for producing a beam in which said optics to scan and focus said first beam in said tissue and collect reflected light from said tissue;
means for detecting said returned light and producing signals in accordance with said detected returned light representing and images; and
means responsive to said signals for visualizing said images of said tissue.
4. A method for cellular surgery in tissue comprising the steps of:
providing a laser which produces an illumination beam;
scanning and focusing the beam in tissue and collecting returned light from said tissue with the aid of optics;

detecting said returned light and producing signals in accordance with said detected returned light representing images and histological signatures of said tissue;

visualizing said images of said tissue in accordance with said signals;

targeting in response to said signatures one or more cells of said tissue in said visualized images for surgical treatment; and

operating said laser between a first mode to expose said tissue to the energy of said beam sufficient to treat said tissue and a second mode to visualize said tissue without damaging said tissue, in which said laser and optics are in said first mode when said optics focuses the beam at least one region in the tissue associated with said targeted cells, and said laser and confocal optics are in said second mode at all other times.

5. The method according to Claim 4 wherein said region includes at least one of said targeted cells and other cells of said tissue surrounding said one of said selected cells.

6. The method according to Claim 4 wherein said region is localized to at least one of said targeted cells.

7. A method for cellular surgery in tissue comprising the steps of:
treating tissue with the aid of a laser beam;
imaging the treated tissue with said beam or another beam, and
evaluating the effectiveness of said treatment from images provided by said imaging step.

8. The method according to Claim 7 wherein said tissue is a region which includes at least one selected cell and other cells of said tissue surrounding said one selected cell.

9. The method according to Claim 8 wherein said imaging step localizes said region to at least one of said selected cells.

10. The method according to Claim 7 wherein said imaging and treating step further comprises the steps of focusing, scanning, and passing reflected light from said tissue with the aid of at least one component of said optics.

11. An apparatus for cellular surgery in tissue comprising:
a laser for producing a beam;
optics for scanning and focusing the beam in tissue and collecting returned reflected light from said tissue;
a detector which receives said returned reflected light and produces signals, in accordance with said detected returned light, representing images;
a display which visualizes said images of said tissue responsive to said signals;
a controller which enables the selection of one or more cells in said a visualized image or said display to target for surgical treatment; and
said controller operating said laser and optics in a first mode to treat said tissue when said optics focuses the beam at the location of said selected cells in the tissue, and at all other times operating said laser and confocal optics in a second mode to not damage said tissue.